NIH & NIBIB Overview

Dr. Roderic Pettigrew, PhD., MD
Director

National Institute of Biomedical Imaging and Bioengineering

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National Institute of Biomedical Imaging and Bioengineering

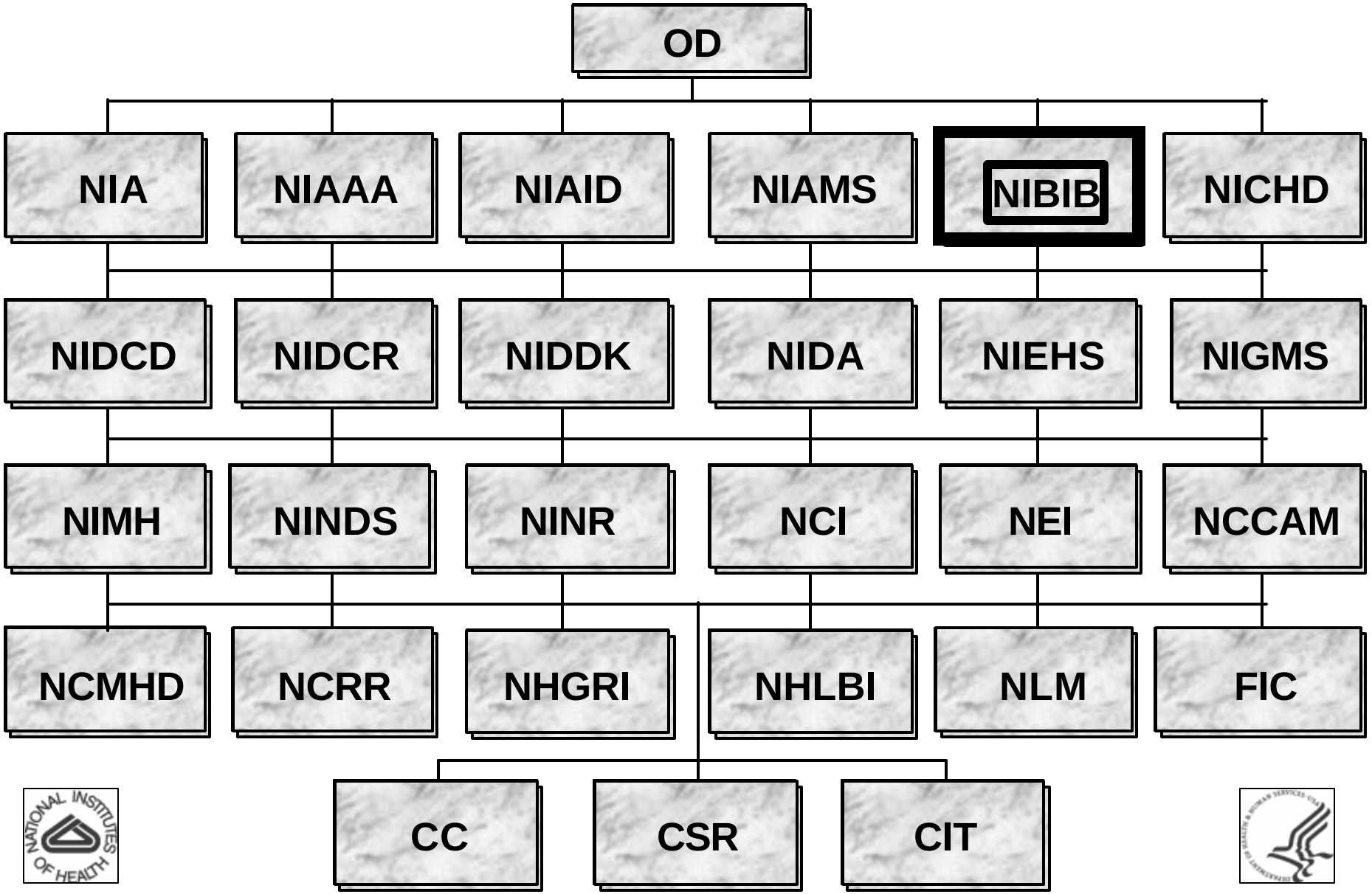
NIH Mission

NIH is the steward of medical and behavioral research for the Nation.

Its mission is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.

An agency of the Department of Health and Human Services, the NIH is the Federal focal point for health research.

The National Institutes of Health



The National Institutes of Health

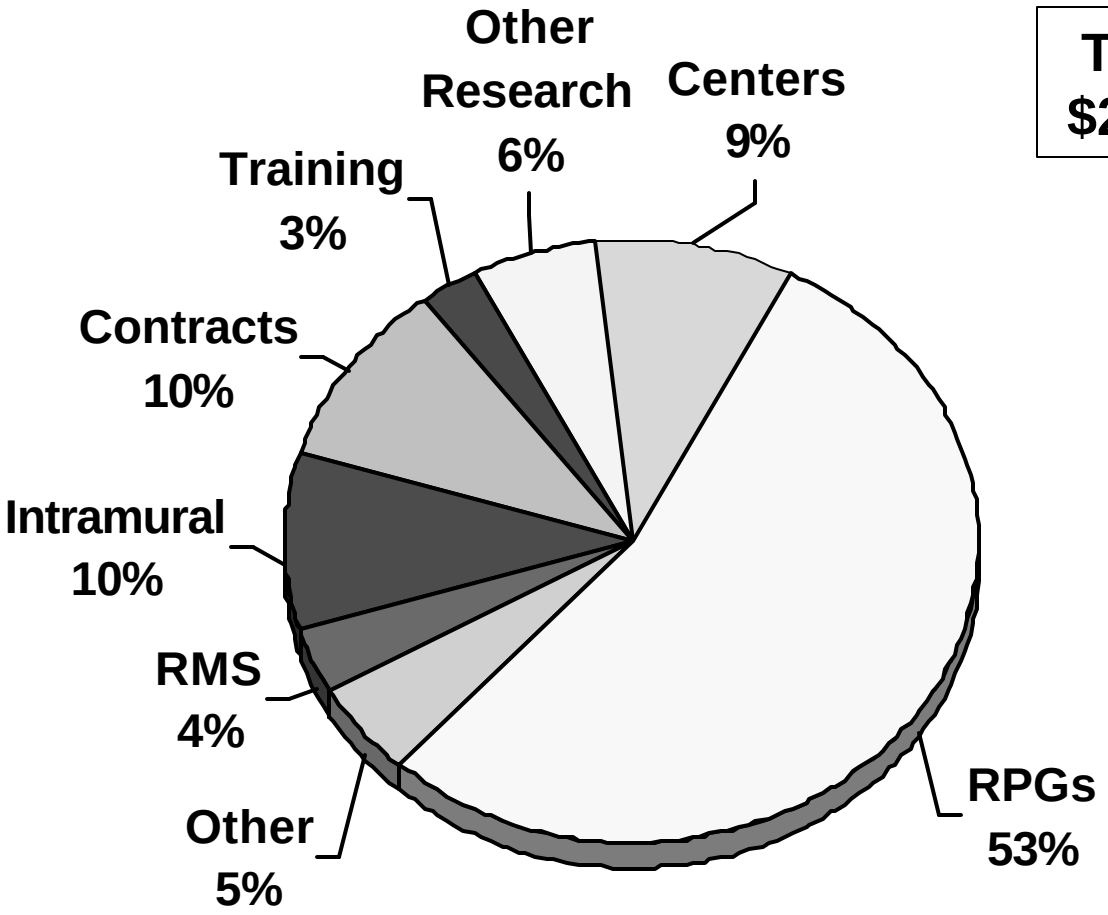
27 Separate Institutes & Centers (IC):

- Different missions & priorities
- Different budgets
- Different ways of deciding which grants to fund

How NIH Institutes Adjust Portfolios to Achieve Their Missions

- Balance between “automatic payline” and “programmatic” decisions
- Issue specific solicitations:
  - “Requests for Applications” (RFAs)
  - “Program Announcements” (PA’s)
- Supplements to existing grants
- Use of discretionary funds

FY 2004 NIH Budget



Total Budget = $28,041,057,000

RPG = Research Project Grant
RMS = Research Management Support

FY 2004 NIH Budget

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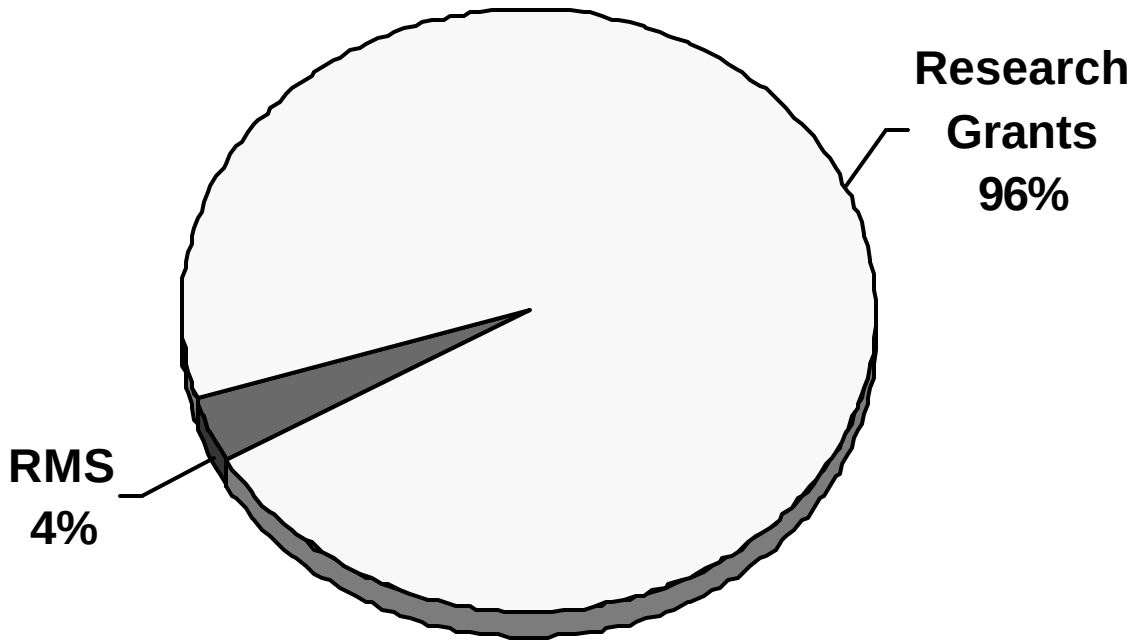


RPG = Research Project Grant
RMS = Research Management Support

NIH Funding Statistics

FY2002	Reviewed	Awarded	Success Rate
New	24,403	6,505	26.7%
Continuation	5,503	2,825	51.3%
Supplements	162	66	40.7%
TOTALS	**30,068**	**9,396**	**31.2%**

NIBIB Mission

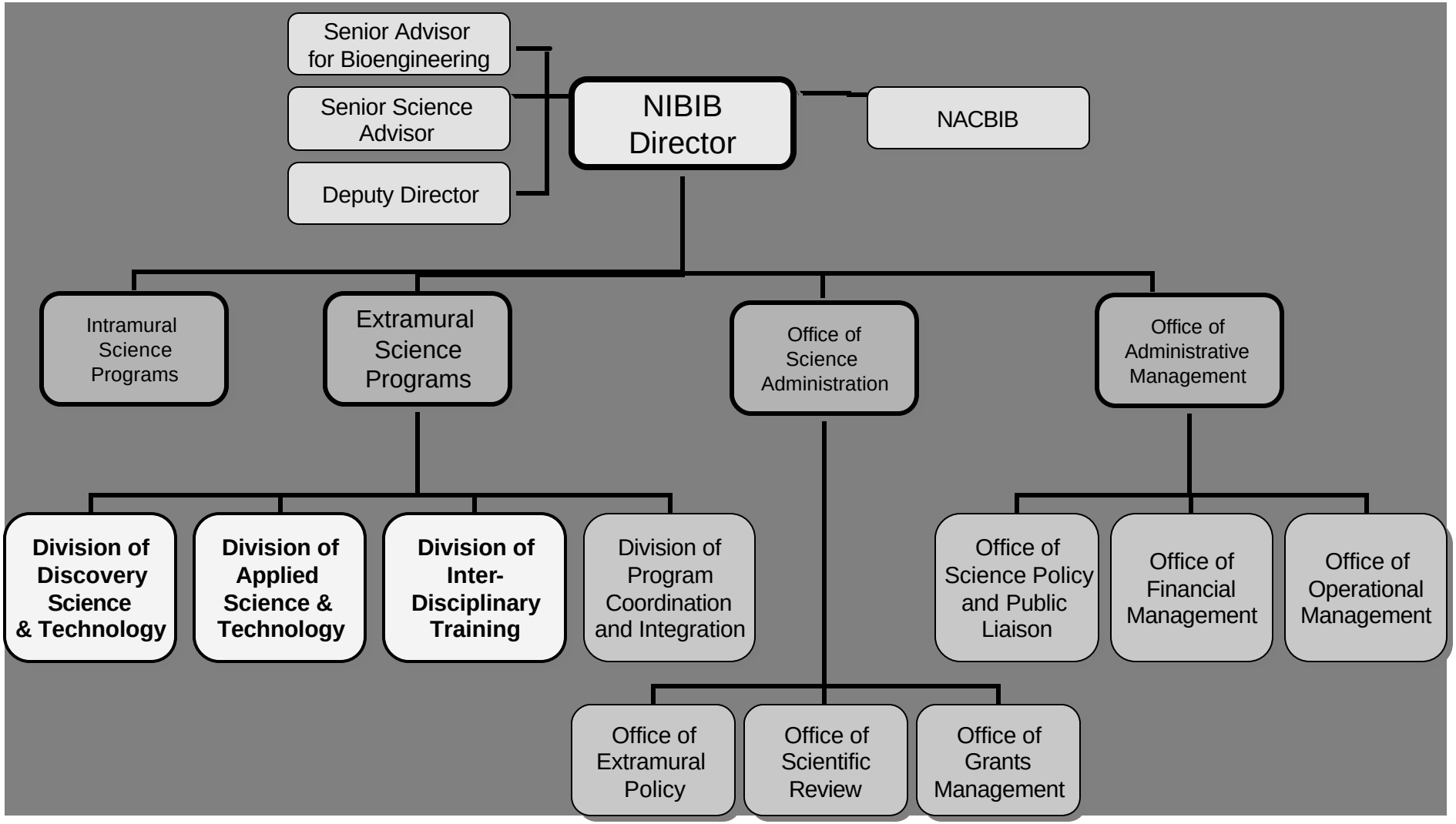
Improving human health by leading the development and accelerating the application of biomedical technologies.

The Institute is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care.

NIBIB Vision

We will profoundly change health care. NIBIB will push the frontiers of technology to make the possible a reality.

NIBIB Organization



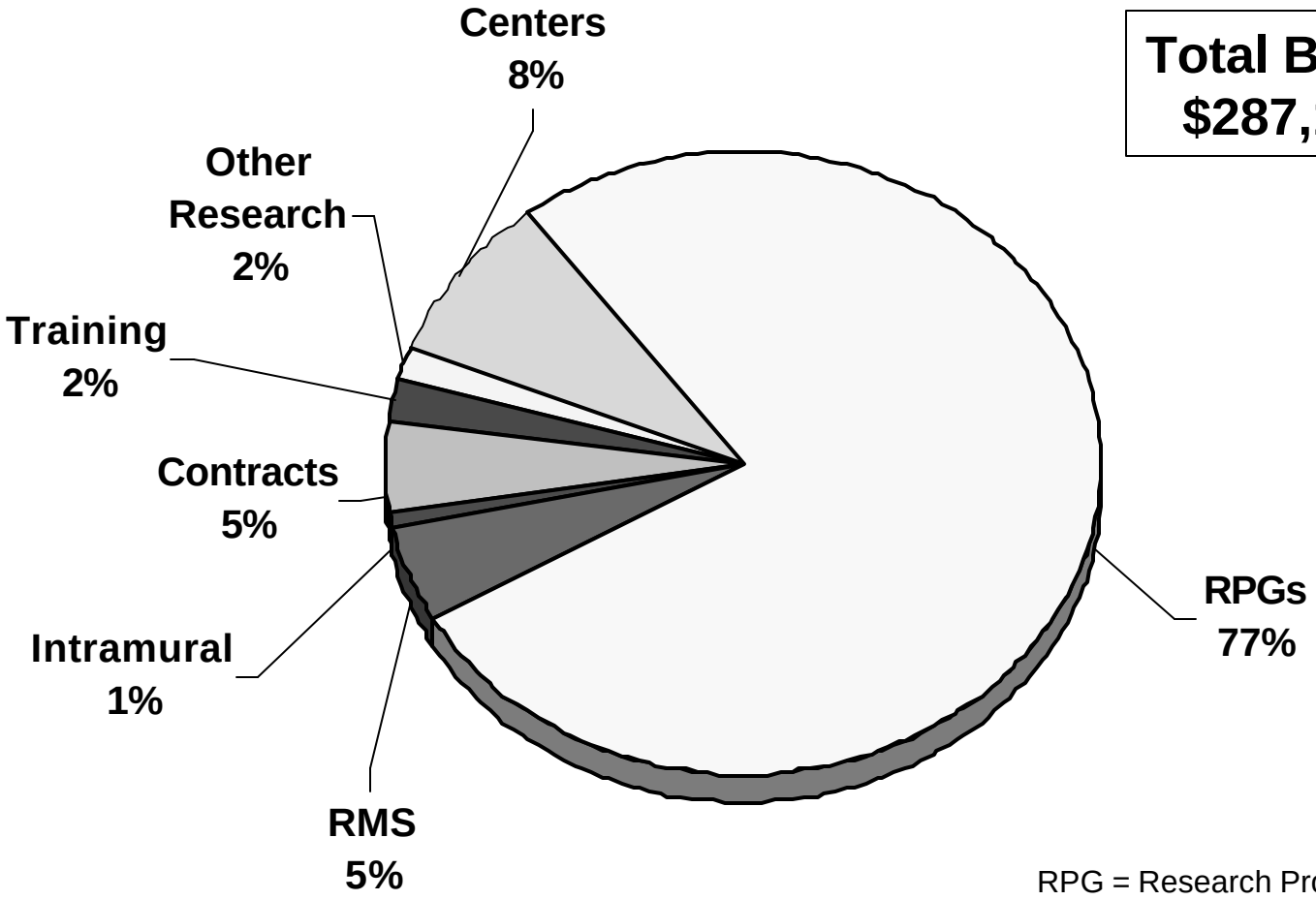
How is NIBIB different?

- Design- and needs-driven research, as well as hypothesis-driven
- Focus on enabling technologies with broad applications to multiple diseases or biological processes
- Multi-disciplinary and collaborative research
- Inter-agency and inter-institute activities

NIBIB Milestones

- December 29, 2000 Authorizing Legislation Signed into Law
- April 20, 2001 Establishment Plan Approved by DHHS Secretary
- January 10, 2002 First Budget Appropriation Passed (FY2002)
- February 21, 2002 First RFAs Released
- April 8, 2002 First Research Grants Awarded
- May 7, 2002 First Director Named - Roderic Pettigrew, PhD, MD
- January 16, 2003 First Meeting of the NACBIB
- February 20, 2003 FY2003 Budget Appropriation Passed
- January 23, 2004 FY2004 Budget Appropriation Passed
- January 26-27, 2005 5-Year Strategic Plan Released

FY 2004 NIBIB Budget



Total Budget = $287,129,00

RPG = Research Project Grant
RMS = Research Management Support

Current NIBIB Grant Portfolio Areas

- Biosensors
- Biomaterials
- Biomechanics
- Bioinformatics
- Computational Biology
- Drug & Gene Delivery
- Image Guided Therapies
- Medical Devices/ Implants
- Nanotechnology
- Nuclear Medicine
- Optical Imaging
- Platform Technologies
- Rehabilitation Engineering
- Surgical Tools & Techniques
- Tissue Engineering
- Ultrasonics
- X ray, EM, Ion Beam
- MRI / MRS

Award Mechanisms
Types of Announcements

RFA = Request for Applications

- Special Review
- Set Aside Funds

PA = Program Announcement

- PAR = with Special Review
- PAS = with Set Aside Funds

Award Mechanisms

Types of Grants

R = Research

T = Training (Institutional)

F = Fellowship (Individual)

K = Career Development

3 Examples of Research Grants

R01

- Basic NIH research grant mechanism
- Biomedical research project with high probability of success, preliminary data
- Average award = $ 300k / year

R21

- Exploratory/Developmental Grant; High-risk research
- Little to no preliminary data; fund to proof-of-principle
- $275k total, 2-3 years max

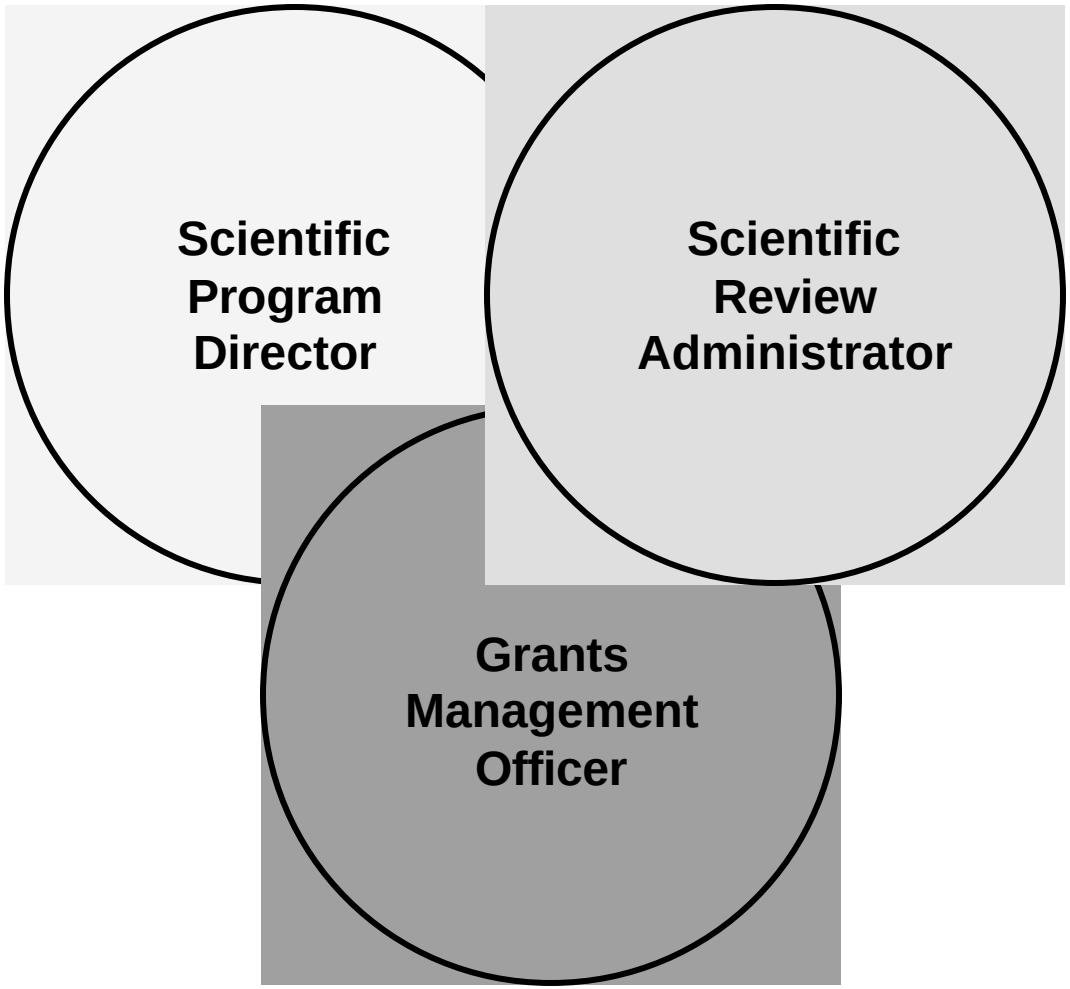
R03

- Small Research Grant
- Little to no preliminary data; fund to proof-of-principle
- $50k/year, 1-2 years max

Overview of NIBIB Research Areas & Opportunities

National Institute of Biomedical Imaging and Bioengineering

NIH Extramural Team



Role of Scientific Program Directors

- Responsible for scientific / technical aspects of grants
- Has a good understanding of their Institute and of other Institutes and Centers (IC) with related missions
- Prepares funding recommendations (does not make funding decisions)
- Represents an important contact for PIs

How Scientific Program Staff Can Help You

- Find best IC and program for your project
- Suggest appropriate mechanism or program
- Provide technical assistance as you develop application
- Help find information on study sections
- Provide additional insight on study section comments

Remember

You must sell your idea
to the peer review panel,
not scientific program staff.

BEFORE Preparing your Application

- Contact Scientific Program Staff at the relevant IC (based on mission)
- Describe project to staff and ask if they would encourage submittal
- If not, ask about other opportunities and who might have an interest
- If over $500K direct costs in any year, ask about initial approval requirements

Applications Over $500K

- Policy applies to applications requesting more than $500K in direct costs in any one year
- Must **request** permission to submit application **6 weeks before receipt date**
- Request permission from the scientific program staff from the Institute (IC)
- Request should contain:
  - Brief description of the project & specific aims
  - Draft budget for all years
- NIH-wide policy (NOT-OD-02-004)
- Applications will not be accepted without approval

Current NIBIB Grant Portfolio Areas

- Biosensors
- Biomaterials
- Biomechanics
- Bioinformatics
- Computational Biology
- Drug & Gene Delivery
- Medical Devices & Implant Science
- Nanotechnology
- Neuroprothesis & Neuroengineering
- Platform Technologies
- Rehabilitation Engineering
- Surgical Tools & Techniques
- Tissue Engineering

Current NIBIB Grant Portfolio Areas

- Imaging Agents & Molecular Probes
- Image Displays
- Image Guided Therapies & Interventions
- Image Perception
- Image Processing
- Magnetic, Biomagnetic & Bioelectric Devices
- Magnetic Resonance Imaging & Spectroscopy
- Nuclear Medicine
- Optical Imaging & Spectroscopy
- Telemedicine
- Ultrasound and Acoustics
- X ray, Electron & Ion Beam

SBIR / STTR Programs

- **SBIR = Small Business Innovation Research**
  - 2.5% set-aside of extramural funds
  - Phase I: $100,000 / 6 months
  - Phase II: <$750,000 total
  - PI must have primary employment with the small business

- **STTR = Small Business Technology Transfer**
  - 0.3% set-aside of extramural funds
  - Phase I: $100,000 / 12 months
  - Phase II: <$750,000 total
  - Requires a formal collaboration between small business and research institution
    - 40% of project must be conducted by small business
    - 30% of project must be conducted by “partnering” research institution

Goals of SBIR / STTR

- Increase the participation of small business in Federal Research and Development (R&D)
- Increase private sector commercialization of technology developed through Federal R&D
- Use small businesses to stimulate technological innovation

Applications from New Investigators

- **Identify yourself as a New Investigator**
  - **Definition in PHS 398**
  - **Mark box on face page of PHS 398**
- **Reviewers often de-emphasize track record**
- **Special consideration given when making funding decisions**

NIBIB New Investigator Policy

- Aims to improve the success of new investigators applying for R01 awards

- Specifically:
  - NIBIB staff will identify grant applications by investigators new to the NIH.
  - New investigators who have scores within 5 percentile points of the NIBIB stated pay line for any given fiscal year will be selected for funding.
  - This policy will apply only to Program Announcements and unsolicited R01 applications.

Unsolicited Applications

- Also called “Investigator-Initiated”
- Applications that are not in response to specific Program Announcements (PA) or Requests for Applications (RFA)
- Majority of applications received at the NIH are “Investigator-Initiated” or unsolicited
- Applicants are always encouraged to submit unsolicited applications
- Contact Scientific Program Staff to ensure that project scope fits mission

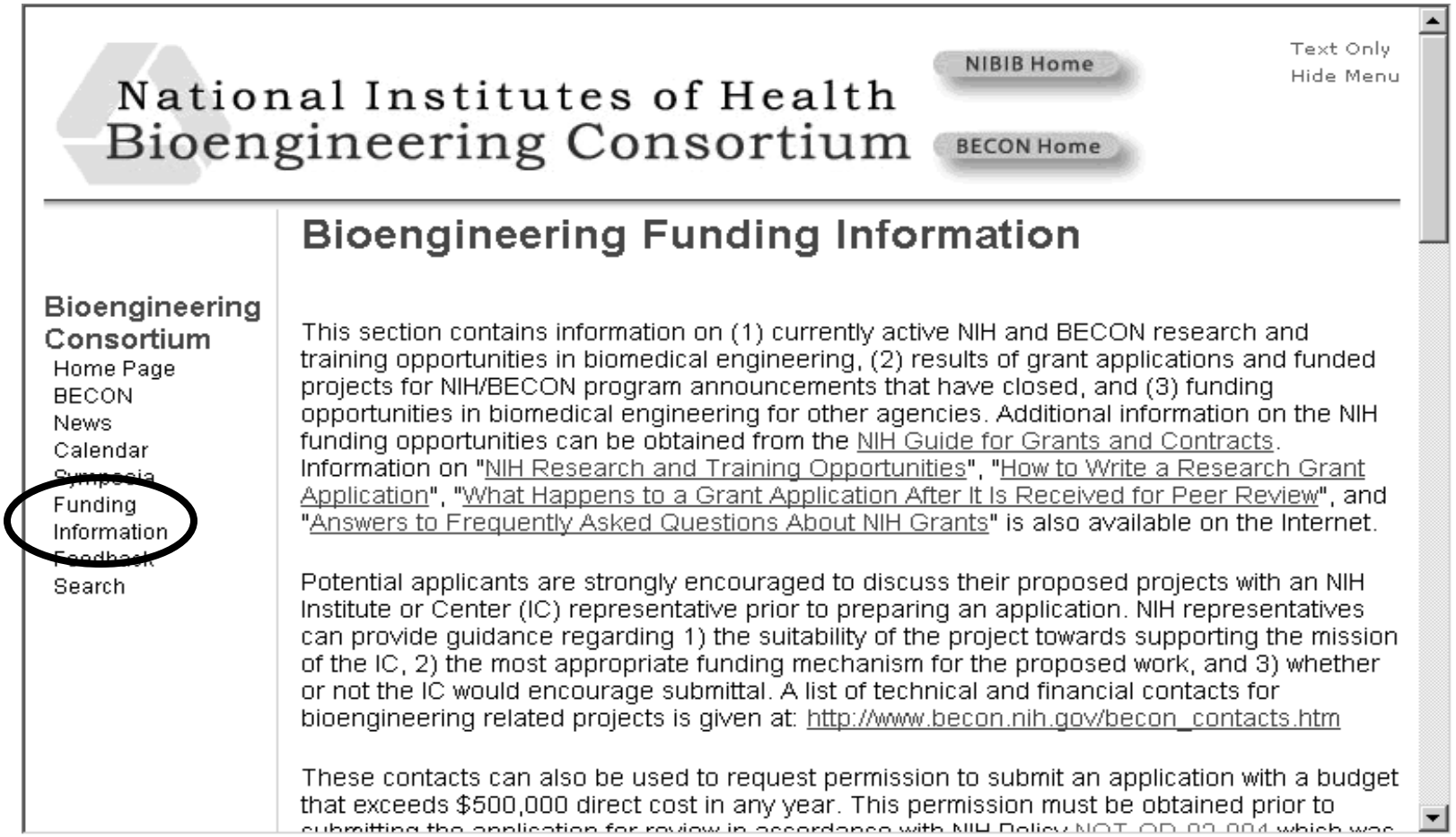
Biomedical Technology Resource Centers (P41)

- National Resources for Scientific Community
  - Support the discovery, development and dissemination of leading-edge technologies with broad applications to biology and medicine
  - Provide access and technical assistance to outside investigators to the center's resources
  - Collaborate with outside investigators to refine and improve center technology and methods
  - Offer training in the use of the center's technologies (seminars, hands-on lab experience, short courses, etc.)
  - Encourage outreach to scientific community by presenting at meetings, conducting conferences and hosting websites

NIH Bioengineering Consortium (BECON)

- Established in February 1997
- Consists of representatives of all NIH Institutes, Centers, and Offices and other Federal agencies (DOE, NSF, NIST)
- Administered by the NIBIB
- Chair: Dan Sullivan, MD (NCI)
- Web site: www.becon.nih.gov

BECON Web Site
www.becon.nih.gov



BECON Research Opportunities

- Bioengineering Research Grants (BRG): R01
- Bioengineering Research Partnerships (BRP): R01
- Exploratory/Developmental Bioengineering Research Grants (eBRG): R21
- Nanoscience and Nanotechnology in Biology and Medicine: R01, R21, and SBIR
- SBIR/STTR Bioengineering Awards

BISTIC

NIH Biomedical Information Science & Technology Initiative Consortium

- Established in April 2000
- Similar structure to the BECON
- Bioinformatics: Application of computer science principles and methods to address problems in biology and medicine
- Administered by the NIGMS
  - Center for Bioinformatics and Computational Biology
    Chair: Eric Jakobsson, PhD (NIGMS)
- Web site: www.bisti.nih.gov

BISTIC Research Opportunities

- National Centers for Biomedical Computing: U54
- Continued Development and Maintenance of Bioinformatics & Computational Biology Software: R01
- Innovations in Biomedical Information Science and Technology: Phased Innovation Awards: R21/R33
- Innovations in Biomedical Information Science and Technology: SBIR/STTR Initiative: SBIR / STTR

NIH Roadmap

http://nihroadmap.nih.gov

General Objective: Make the NIH optimally-effective in meeting its mission of improving health and quality of life

Impact: Ten-year plan – 2004 to 2013

$128 M in 2004 to >$ 2 B in 2009

Bench – to – Bedside – to – Practice

NIH Roadmap Specific Objectives

- Accelerate the pace of discoveries in the life sciences
- Identify major opportunities and gaps in biomedical research
- Identify areas that no single Institute or Center could address alone
- Rapidly translate discoveries into practice
- Build an integrated system that is far more effective than current approaches